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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/453,592	12/03/1999	SATOSHI KITAYAMA	P99-2094	2848

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EXAMINER

HILL, BRADFORD K

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 03/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/453,592

Applicant(s)

KITAYAMA ET AL.

Examiner

Bradford K Hill

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 22 January 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 9, the newly added limitation of the gate portion comprising a barrier gate portion is not supported by the specification as originally filed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuno (093) or the Applicant's admitted prior art in view of Stevens et al. (886) [herein referred to as Stevens].

Regarding claims 1-3, 7, 9, and 10, Kuno teaches a photoelectric converter (Figure 1) comprising a light receiving portion 6; a readout gate 3; a gate portion 1 (which acts as a barrier to charge flow and substantially prevents leaking of charge from the light receiving portion in the off state); and a charge transfer portion 4. Kuno further teaches tapering the readout gate width, in order to create a more favorable charge transfer, although Kuno fails to teach the technique of accomplishing this by narrowing the readout gate from the end nearest the light receiving portion to the opposite end near the charge transfer portion. The Applicant's admitted prior art also discloses the same claimed invention except the gate portion having different widths on each side. However, Stevens teaches it is known in the art to narrowing the readout gate portion (Figure 6), wherein the width w_2 of the readout gate portion (which Stevens et al. refer to as the "channel width") is wider at the end nearest the light receiving portion than at the opposite end nearest the charge transfer portion (see column 3, lines 26-32). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to taper the readout gate, by narrowing the gate from the end confronting the light receiving portion to the opposite end confronting the charge transfer portion in the photoelectric converter of Kuno or the Applicant's admitted prior art, in order to improve the charge transfer characteristics.

Regarding claim 4, Kuno further teaches a photoelectric converter including a plurality of pixels and charge couple devices (Figure 1). Applicant's admitted prior art also discloses a photoelectric converter including a plurality of pixels and charge couple devices (Figure 7).

Regarding claim 5, Kuno further teaches a photoelectric converter comprising an imaging charge-couple device (CCD), which is known inherently to have pixels comprised of photodiodes. The Applicant's admitted prior art also discloses using a photodiode (Figure 4B).

Regarding claim 6, Kuno further teaches that it is possible to have a rate of change of the width of the read out gate, which in view of Stevens teachings of narrowing the width linearly, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to narrow curvedly taper the readout gate in the photoelectric converter of Kuno in view of Stevens, in order to improve the charge transfer characteristics. Moreover, it would have been obvious to curvedly taper the readout gate in the Applicant's admitted prior art to improve the charge transfer characteristics.

Regarding claim 8, Kuno further teaches a photoelectric converter wherein the charge transfer portion includes CCDs connected along a vertical axis (column 3, lines 56-61). Applicant's admitted prior art also further discloses a photoelectric converter wherein the charge transfer portion includes charge-coupled devices connected along a vertical axis (Figure 7).

Response to Arguments

Applicant's arguments filed 1/22/02 have been fully considered but they are not persuasive.

In regards to claim 1, line 4, "the first side confronting the output end of the light receiving portion", it should be noted that the term "confronting" does not necessarily refer to the first side being in direct contact with the output end of the light receiving portion. Thus, the Applicant's remark on p. 6 and 7 are not persuasive.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradford K Hill whose telephone number is 703-308-6268. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached on 703-308-4090. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

bkh
March 7, 2002



SEUNGSOOK HAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800